REMARKS

Recordation of the terminal disclaimer removing the double patenting rejection and finality of the restriction requirement have been indicated. Claims 13-41 remain in the application. In a final office action dated March 20, 2008 the Examiner repeated his rejection of all pending claims under the same prior art and arguments presented in the non-final office action of September 10, 2007. Applicant respectfully traverses the rejections and requests allowance of all pending claims.

Claim Rejections

As an initial matter, Applicants re-assert and incorporate by reference all responses submitted in the office action response dated December 7, 2007. In addition to the responses already submitted, Applicants assert the following additional responses.

Obviousness rejections of claims 13-18, 20-21, 24-27, and 34-41

The examiner rejected claims 13-18, 20-21, 24-27, and 34-41 as unpatentable over McKinney (U.S. 4,061,562) in view of Khan (U.S. 6,059,957) and Gomi (U.S. 3,689,401). First, McKinney fails to teach or suggest the process as disclosed in the claims of the application. Second, Applicants rebut the Examiner's argument that "McKinney teaches that it may be desired to send the hydrogen containing gas to the cracking step." Third, McKinney is not combinable with either of Khan or Gomi. For at least these reasons and the previously provided reasons, Applicants respectfully request allowance of claims 13-18, 20-21, 24-27, and 34-41.

First, McKinney fails to teach or suggest the process as disclosed in the claims of the application. In particular, the process of McKinney utilizes hot solids instead of gas for cracking. More specifically, McKinney discloses essentially a flue-coking process wherein "[m]ost of the heat is carried into the interior of the riser by the hot inert solids

while a smaller portion of heat is carried into the riser by diluent steam and preheated oil." McKinney, col. 2, ll. 38-41. In contrast, the application provides a process wherein "heavy oil is rapidly cracked and vaporized once it contacts hot syngas [and] the majority of the heavy oil in the eduction nozzles goes through gas phase cracking reactions." Para. [0059]. The process of McKinney heats the oil using hot solids, while the process of the invention heats the oil using gas. Claim 13 of the application discloses thermal cracking in the presence of a hydrogen containing gas and claim 15 of the application states that the thermal cracking reaction is "predominantly a gas phase thermal cracking reaction." The Examiner has not addressed these differences between the application and the prior art. For at least these reasons, McKinney fails to teach or suggest the thermal cracking step of the process of the present invention and claims 13 and 15 are patentable over McKinney. Applicants respectfully request allowance of claims 13, 15, and all claims depending therefrom.

Second, Applicants rebut the Examiner's argument that "McKinney teaches that it may be desired to send the hydrogen containing gas to the cracking step." In the office action response of December 7, 2007, Applicants argued that McKinney teaches removal of hydrogen gas prior to the cracking step. The Examiner did not and cannot dispute that hydrogen removal is a *preferred* step. In particular, McKinney states "[a] significant advantage of the present embodiment is that a compounded process hydrogen economy can be achieved..." McKinney, col. 13, ll. 14-16. McKinney calls for adding hydrogen containing gas to the hydrodesulferization step prior to the cracking step. To add more hydrogen gas in the cracking step would reduce the "hydrogen economy" of the process as a whole and therefore defeat this "significant advantage." In addition, McKinney fails to teach an embodiment wherein it is preferable to add hydrogen gas to the cracking step. For at least these additional reasons, Applicants believe that McKinney fails to make the claims of the application obvious. As such, allowance of the pending claims is respectfully requested.

Third, McKinney is not combinable with either of Khan or Gomi. It is noted that the Examiner did not set forth any motivation to combine McKinney with either of Khan or Gomi and, as such, has failed to set forth a *prima facie* obviousness rejection. Applicants assert that a person of ordinary skill in the art would not be motivated to combine McKinney with either of Khan or Gomi because McKinney is a "non-catalytic" process, while each of Khan and Gomi are catalytic cracking processes. More specifically, McKinney teaches "a process for *non-catalytic* thermal cracking of hydrodesulferized residual petroleum oils." McKinney, col. 1, ll. 6-8 (emphasis added). Further, McKinney specifically teaches away from catalytic cracking processes because such processes are "not capable of producing a substantial hydrogen yield [because] the temperature of such a cracking process is considerably below the temperature of the present process so that the type of cracking which occurs is the severing of carbon-carbon bonds [and a] considerably higher temperature is required to sever hydrogen-carbon bonds." McKinney, col. 8, ll. 25-35. The process taught by Khan is a catalytic process having cracking temperatures of between 400-440°C. *See, e.g.* Khan, col. 2, ll. 45-46, 51-53, col. 4, ll. 26-27, and claim 1. The process taught by Gomi is a catalytic process operating at temperatures from 250-450 °C. *See, e.g.* Gomi, abstract, col. 2, ll. 69-71 and col. 3, ll. 30-32. Applicants believe that Khan and Gomi disclose the types of processes that McKinney specifically teaches away from. For at least these reasons, McKinney is not combinable with either of Khan or Gomi. As such, the obviousness rejections relying on such a combination are believed to be improper and overcome. Applicants respectfully request allowance of all claims rejected as obvious by the combination of McKinney, Khan and Gomi and all claims depending from these allowable claims. As such, it is believed that each of claims 13-40 is patentable over the prior art and allowance of these claims is respectfully requested.

Conclusion

In view of the remarks set forth above, Applicants respectfully request allowance of all pending claims. While no fees are believed to be due, the Commissioner is hereby authorized to charge the Deposit Account No. 05-1328 for any fees associated with extensions of time for this application. Further, if the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

May 20, 2008
Date

Adam P. Brown
Reg. No. 52,657
Attorney for Applicants

ExxonMobil Upstream Research Company
P.O. Box 2189
CORP-URC-SW348
Houston, Texas 77252-2189

Tel. 713-431-7649